Notice of Allowability	Application No.	Applicant(s)	
	09/919,918	SAMPSON ET AL.	
	Examiner	Art Unit	
	Ngoc-Yen M. Nguyen	1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *October 12 and 36, 2005*.

2. ☒ The allowed claim(s) is/are *2-12,16-27,44-46 and 48-50*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

From previous restriction requirement, the elected invention comprises claims 1-12, 16-27, 42-51. Claims 28-41 are currently withdrawn from consideration.

A further restriction requirement is now required for the currently elected claims:

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 2-12, 16-27, 44-51 are, drawn to a process for producing chlorous acid, classified in class 423, subclass 472.

II. Claims 42-43 are, drawn to a process for producing chlorine dioxide, classified in class 423, subclass 477+.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and process of using the product. The use as claimed cannot be practiced with a materially different product. Since the product is not claimed and not allowable, restriction is proper between said method of making and method of using.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Mr. Joseph Contrera on December 23, 2005 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-12, 17-27, 44-51. Affirmation of this election must be made by applicant in

replying to this Office action. Claims 42-43 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Joseph Contrera on December 23, 2005.

The application has been amended as follows:

IN THE CLAIMS:

Please amend and add the claims as set forth herein.

Listing of the Claims:

1. (Canceled)

2. (Currently Amended) A process for generating chlorous acid which comprises contacting a chlorite salt ~~precursor~~ solution with a cation exchange material in the hydrogen form in a moist environment for a time sufficient to effect an essentially complete substitution of the cations in the chlorite salt with the hydrogen ions on the cation exchange material to form chlorous acid.

3. (Original) The process as described in Claim 2 wherein said cation exchange material is mixed with an additive.

4. (Currently Amended) A process for generating chlorous acid which comprises contacting a chlorate salt ~~precursor~~ solution with a cation exchange material in the hydrogen form in a moist environment for a time sufficient to effect an essentially complete substitution of the cations in the chlorate salt with the hydrogen ions on the cation exchange material form chlorous acid.

5. (Original) The process as described in Claim 4 wherein said cation exchange material is mixed with an additive.

6. (currently amended) A process for generating chlorous acid which comprises contacting a chlorate salt ~~precursor~~ solution and an acid with an anion exchange material in a reducing ionic form in a moist environment for a time sufficient to form chlorous acid.

7. (Original) The process as described in Claim 6 wherein said anion exchange material is mixed with an additive.

8. (Original) A process for generating chlorous acid which comprises contacting an acid with an anion exchange material in the chlorate form in a moist environment for a time sufficient to form chlorous acid.

9. (Original) The process as described in Claim 8 wherein said anion exchange material is mixed with an additive.

10. (currently amended) A process for generating chlorous acid and chlorine dioxide which comprises contacting a chlorite salt ~~precursor~~ solution with a cation exchange material in the hydrogen form and a catalytic material in a moist environment for a time sufficient to form chlorous acid and chlorine dioxide together.

11. (Original) The process as described in Claim 10 wherein said catalytic material is on said cation exchange material.

12. (Original) The process as described in Claim 10 wherein said catalytic material is an ion exchange material.

13. (Canceled)

14. (Canceled)

15. (Canceled)

16. (currently amended) A process for generating chlorous acid and chlorine dioxide which comprises contacting a chlorate salt ~~precursor~~ solution with a cation exchange material in the hydrogen form and a catalytic material in a moist environment for a time sufficient to form chlorous acid and chlorine dioxide together.

17. (Original) A process as described in Claim 16 wherein said catalytic material is on said cation exchange material.

18. (Original) A process as described in Claim 16 wherein said catalytic material is an ion exchange material.

19. (currently amended) A process for generating chlorous acid and chlorine dioxide which comprises contacting a chlorate salt ~~precursor~~ solution and an acid with a catalytic material in a moist environment for a time sufficient to form chlorous acid and chlorine dioxide together.

20. (Original) The process as described in Claim 19 wherein said catalytic material is on an ion exchange material.

21. (Original) The process as described in Claim 19 wherein said catalytic material is an ion exchange material.

22. (Original) The process as described in Claim 19 wherein said catalytic material is an ion exchange material in a reducing ionic form.

23. (Original) A process for generating chlorous acid and chlorine dioxide which comprises contacting an acid with an anion exchange material in the chlorate form and one catalytic material in a moist environment for a time sufficient to form chlorous acid and chlorine dioxide together.

24. (Original) The process as described in Claim 23 wherein said catalytic material is on said anion exchange material.

25. (Original) A process as described in Claim 23 wherein said catalytic material is an ion exchange material.

26. (Original) The process as described in Claim 23 wherein said acid is a reducing agent.

27. (Original) The process as described in Claim 23 wherein said acid is mixed with a reducing agent.

28 – 43. (Canceled)

44. (currently amended) The process as described in claim 10, wherein said moist environment is an aqueous solution of said chlorite salt ~~precursor~~ solution.

45. (Previously Presented) The process as described in claim 10, wherein said catalytic material is selected from the group consisting of platinum, palladium, magnesium dioxide, carbon and ion exchange material.

46. (Previously Presented) The process as described in claim 10, wherein said catalytic material is deposited on a suitable substrate to aid catalysis of said chlorous acid to said chlorine dioxide.

47. (canceled)

48. (Previously Presented) The process as described in claim 10, wherein said cation exchange material is a strong acid cation exchange material.

49. (Previously Presented) The process as described in claim 10, wherein said cation exchange material is selected from the group consisting of weak acid cation resins and powders, strong acid cation resins and powders, and cation selected membranes, or any combination of the foregoing.

50. (Previously Presented) The process as described in claim 44, wherein said aqueous solution containing said chlorous acid and chlorine dioxide is used for disinfection.

51. (canceled)

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance (for claims 2, 4 and their dependent claims): The prior art does not teach or suggest a process for producing chlorous acid by passing a chlorite salt solution through a cation exchange material to effect an essentially complete substitution of the cations in the chlorite salt with the hydrogen ions in the cation exchange material. Support for the "essentially complete substitution … to form chlorous acid" as required in the instant claims 2 and 4 can be found on page 10, lines 10-15. The "acidification" as disclosed therein is caused by the substitution of the cations in the chlorite salt or chlorate salt (for example, sodium ions when a sodium chlorite solution was used) with hydrogen ion from the cation exchange material to thereby forming chlorous acid, thus the meaning of term "acidification" is the

same as the meaning of "substitution of the cations in the chlorite salt with the hydrogen ions on the cation exchange material". In the specification, the disclosure of the "total acidification... is possible" fairly teaches that the acidification or the substitution of the cations is desired to carry to as complete as possible. Furthermore, in the Declaration filed October 12, 2005, item 9, only 0.8 mg/l of sodium chlorite remains in the effluent, i.e., unsubstituted, from an influent solution contains 1000 mg/g sodium chlorite. The percentage of sodium in the sodium chlorite being substituted with the hydrogen ions is greater than 99%. Thus, the limitation of "essentially complete substitution" is taken to require that at least greater than 99% of the sodium ions in the sodium chlorite would be substituted with hydrogen ions to form chlorous acid, at least when the cation exchange was freshly regenerated or new. In the closest prior art Callerame (3,684,437 and 3,828,097), the percentage of substitution is clearly less than 99% (note for example, Callerame '437, Example 9). Reasons for allowance for other claims were stated in the previous office actions.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ngoc-Yen M. Nguyen whose telephone number is (571) 272-1356. The examiner is currently on Part time schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Stanley Silverman can be reached on (571) 272-1358. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 or (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed (571) 272-1700.

Ngoc-Yen M. Nguyen
Primary Examiner
Art Unit 1754

nmn
December 27, 2005